

## SCIENTIFIC NOTE

**PREDATION BY *ENALLAGMA CIVILE* (ODONATA: COENAGRIONIDAE) ON ADULT SWEETPOTATO WHITEFLY, *BEMISIA TABACI* (HOMOPTERA: ALEYRODIDAE)<sup>1</sup>**Paul W. Schaefer<sup>2</sup>, Susan E Barth<sup>2</sup>, Harold B White, III<sup>3</sup>

During a search for natural enemies of sweetpotato whitefly, *Bemisia tabaci* (Gennadius) (Homoptera: Aleyrodidae), on September 1, 1995, PWS and SEB observed a female damselfly, *Enallagma civile* (Hager) (Odonata: Coenagrionidae), actively searching whitefly-infested leaves of soybean plants in a field, 3 km south of Sudlersville, Queen Anne's County, Maryland. The female patrolled a limited area among the plant rows near the edge of a large soybean field on the north side of Racetrack Road. Patrolling behavior suggested that this damselfly was feeding on the only observable potential prey species present, the sweetpotato whitefly. After several minutes, we noted a series of behaviors as the female alighted on an exposed soybean leaf and rested for up to 20 seconds before moving to another vantage point. Then in the midst of this ongoing, repetitive behavior, a predatory search was performed in which a hovering flight appeared to focus on the generally vertical upper surface of a drooping leaf of a soybean plant, made particularly limp by a continuing drought. The female hovered nearly perpendicular to the plane of the leaf and approximately 1-2 cm from the surface. In this position, we twice observed the female move over a target adult whitefly and pounce by quickly flying close enough to the surface to grab the adult whitefly, apparently using a combination of legs and mandibles to secure a hold on the prey and then move again to alight on another leaf. There it appeared to complete feeding on the catch and continue to rest as before. Within about 3 minutes, we observed this routine twice before we intervened by catching the female with a quick swipe of the hand, although not without missing twice previously. Following the misses, the female flew only a short distance before settling promptly on another leaf. This was repeated until we collected it and HBW subsequently identified it and incorporated the specimen into his collection.

According to Byers (1930), who provides a description of this species, *E. civile* is relatively small, measures ca. 30 mm in length, and is widespread in North America. We find no records of acceptable prey of *E. civile*. Although we generally expect Odonata to feed on the wing, Corbet (1962) notes that these insects also cruise over surfaces and will take stationary prey. He cites a number of examples, including one of a congener, *E. cyathigerum* Charpentier, recorded as feeding by hovering over a bush and removing beetle larvae from the leaves. Furthermore, Corbet states that this method of feeding appears more frequently in the Zygoptera than in the Anisoptera.

Mound and Halsey (1978) listed the natural enemies of sweetpotato whitefly, but they do not record any Odonata as predators. Although we cannot envision predation by *E. civile* having much biological control impact on a flourishing population of sweetpotato whitefly, our observations suggest that this damselfly has readily adapted to a new prey species under typical agricultural conditions present on the eastern shore of Maryland. We can only suggest that this predation has more of an impact than imagined, particularly at low whitefly population levels. Clearly, *E. civile* is an opportunistic predator that has behaviorally adapted to feeding on a stationary and previously unavailable prey.

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## SCIENTIFIC NOTE

DISCOVERY OF THE MILLIPED *CONOTYLA BLAKEI*,  
IN CANADA (CHORDEUMATIDA: CONOTYLIDAE)<sup>1</sup>Rowland M. Shelley<sup>2</sup>, Laurent LeSage<sup>3</sup>

The conotylid diplopod, *Conotyla blakei* (Verhoeff), occurs in caves and epigeal environments in West Virginia, Maryland, Pennsylvania, New York, Massachusetts, Vermont, and New Hampshire (Shear 1971). Kevan (1983) added Maine and reported questionable Canadian occurrence in southern Québec based on unpublished material. The location of his material is unknown, so the citation is not verifiable. Shelley (1988) could only list the milliped as potential for the province because of proximate records in the adjacent United States, but he included it in the second half of couplet 12 in a key to east Canadian species. We now confirm *C. blakei* from Canada and Québec based on an adult male from Parc de la Gaspésie on the Gaspé Peninsula; its gonopods conform closely to the illustrations by Shear (1971, figs. 17-18). The specimen was collected by F. Landry, 25-28 September 1991, from a pitfall trap in a conifer forest near Lake Caribou and is housed at the Centre for Lands and Biological Resources, Ottawa. While *Conotyla* is known from eastern Canada based on a juvenile female from Algona County, Ontario (Shelley 1988), this discovery adds a new species, genus, and family to the provincial fauna and represents a new species for the country. The genus and family are also well known from western Canada, as *C. atrolineata* (Bollman), *C. albertana* Chamberlin and *Austrotyla borealis* Shear occur widely in the Rocky Mountains of Alberta and British Columbia (Shear 1971, Shelley 1990).

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